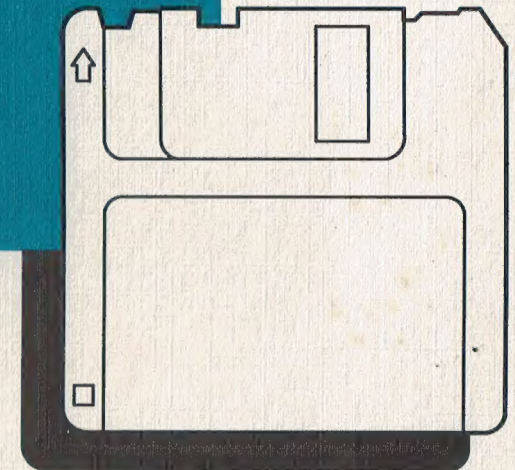


PowerMate® Portable SX

[RDY]
***** T&D COMPONENT MENU (REV. 001.00) *****
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NO.	MODULE NAME	REV.	NO.	MODULE NAME	REV.
01	MAIN MEMORY TEST	001.01	02	MPU TEST (R MODE)	001.0
03	CPU (P MODE) TEST	001.01	04	SYSTEM CLOCK TEST	001.0
05	KEYBOARD TEST	001.00	06	DISPLAY TEST	001.0
07	FLOPPY DISK TEST	001.00	08	HARD DISK TEST	001.0
09	SERIAL PORT TEST	001.00	10	PARALLEL PORT TEST	001.0
11	INTERNAL MODEM CARD TEST	001.00			

ENTER MODULE NO.
PRESS ENTER



System Checking Program Guide

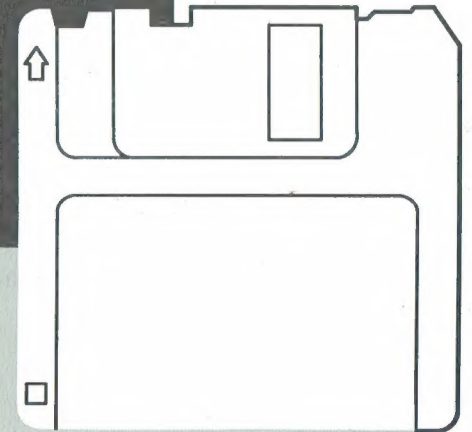
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PowerMate® Portable SX

```
[RDY]
***** T&D COMPONENT MENU (REV. 001.00) *****
                                COPYRIGHT(C)1988 BY NEC CORPORATION
NO.  MODULE NAME              REV.  NO.  MODULE NAME              REV.
01. MAIN MEMORY TEST          001.01 02. MPU TEST (R.MODE)        001.0
03. CPU (P.MODE) TEST         001.01 04. SYSTEM CLOCK TEST       001.0
05. KEYBOARD TEST             001.00 06. DISPLAY TEST           001.0
07. FLOPPY DISK TEST          001.00 08. HARD DISK TEST         001.0
09. SERIAL PORT TEST          001.00 10. PARALLEL PORT TEST     001.0
11. INTERNAL MODEN CARD TEST  001.00
```

ENTER MODULE NO.
PRESS ENTER



System Checking Program Guide

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Contents

	Page
The System Checking Program	1
Loading the Program	2
Running Tests	4
1 Memory Test	5
2 MPU Test (Real Mode)	6
3 CPU Test (Protect Mode)	7
4 System Clock Test	8
5 Keyboard Test	9
6 Display Test	10
Plasma Controller Test	10
A/N Mode	11
APA Mode	12
Display Controller Test	14
Color Monitor	14
A/N Mode	14
APA Mode	15
Monochrome Monitor	17
A/N Mode	17
Test Endings	18
7 Floppy Disk Test	19
8 Hard Disk Test	20
9 Serial Port Test	21
10 Parallel Port Test	23
11 Modem Card Test	24
Error Handling	25

THE SYSTEM CHECKING PROGRAM

The System Checking diskette comes with your system unit and contains the System Checking program. This program checks the functions of the hardware components. With the help of this program, you can isolate any problem to either the hardware or to the software you are using.

This System Checking diskette is designed for use with NEC equipment. If other equipment is used, the System Checking program may not run as intended.

If the System Checking program indicates any hardware errors, call your hardware dealer. If the program indicates that your hardware is operating properly, any problem you have is due to your software. When this is the case, call your software dealer.

LOADING THE PROGRAM

Use the following procedure to load your System Checking diskette. Also refer to your owner's guide.

The System Checking diskette is a self-booting program. You can run the program before or after running the system setup utility.

1. Remove diskettes from all drives.
2. If your system unit power is on, turn it off.

If your unit is already configured, simply insert your System Checking diskette in drive A, label side up, and turn on the system power. The program menu appears on the screen.

3. Turn on the system unit. The system unit power lamp lights. If your display is not already on, turn it on. If you have an NEC MultiSync® II or an Advanced Color Display, the display power lamp lights.

The system power-on screen appears. If you have installed your system unit for the first time, or have changed any of the system hardware, the following message is displayed.

Invalid configuration information - please run SETUP program
Strike F1 key to continue

Two beeps indicate that the system has completed its power-on self-test. If the system unit beeps continuously, turn off the system unit power and try again. If the beeping persists, turn off the system unit and the display and call your NEC dealer. You cannot load the System Checking program when this condition exists.

4. Raise the top drive (drive A) load lever. Insert the System Checking diskette, label side up, into the drive.
5. Lower the drive load lever.
6. Press **F1** to load the diskette into system memory. Program loading takes about 10 seconds. Two beeps indicate that the program is loaded. The following program menu appears on the screen.

```
[RDY]
***** T&D COMPONENT MENU (REV. 001.00) *****
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NO.  MODULE NAME      REV.  NO.  MODULE NAME      REV.
01  MEMORY TEST       001.01  02  MPU TEST (R MODE)  001.0
03  CPU (P MODE) TEST  001.01  04  SYSTEM CLOCK TEST  001.0
05  KEYBOARD TEST     001.00  06  DISPLAY TEST       001.0
07  FLOPPY DISK TEST   001.00  08  HARD DISK TEST     001.0
09  SERIAL PORT TEST   001.00  10  PARALLEL PORT TEST  001.0
11  MODEM CARD TEST    001.00

ENTER MODULE NO.

PRESS ENTER
```

If the program menu, similar to the one above, does not appear, see "ERROR HANDLING." Otherwise, go on to the next section.

RUNNING TESTS

This *System Checking Program Guide* comes with your system unit. It can be used for all NEC system configurations, except where noted in this guide.

The System Checking program menu displays a list of tests which check specific internal hardware components or external devices connected to your system unit.

To select a test, type the number of the test and press **Enter**. For example, type **1** and press **Enter** to select "1 Memory Test."

Each test on the program menu generates a series of screens. When your system is operating properly, the test you are running ends with the following message.

***** NORMAL END *****

If the test does not end displaying this message, see "ERROR HANDLING" in this guide.

For best results, read the section in this guide that describes the test you want to select before running it.

When you finish running the System Checking program,

- remove the System Checking diskette from the diskette drive
- turn off the system unit and the display or turn the lock/reset switch key to **RESET** to clear the system memory.

1 MEMORY TEST

This test checks the system's standard and expansion memory.

At the prompt "ENTER MODULE NO.", type **1** and press **Enter**. The following is displayed on the screen.

This test takes about 67 seconds for each megabyte of memory installed in the system unit.

TEST PATTERN : XSHIFT
TEST AREA : ALL : *

START:MEMORY TEST

MEMORY MAP



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 MB

TEST EXECUTE MEMORY AREA

----- (=32KB)
***** (*=32KB)

The highlight on the screen indicates the value of installed memory.

The memory test ends when the asterisk (*) displayed at the end of the highlight and the number of asterisks (*) displayed on the screen equals the number of hyphens (-).

The Memory Test ends with the following message.

***** NORMAL END *****

If this message appears, all system memory is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

2 MPU TEST (REAL MODE)

This test checks the command execution functions of the system microprocessor.

At the prompt "ENTER MODULE NO.", type **2** and press **Enter**. The MPU Test (Real Mode) ends with the following message.

***** NORMAL END *****

If this message appears, the real mode functions of your microprocessor are operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

3 CPU TEST (PROTECT MODE)

This test checks the protect mode of the system microprocessor. Protect mode functions include exceptional processing, protect features, virtual addressing, virtual Intel® 8086 mode and the 80387SX coprocessor, if installed.

At the prompt "ENTER MODULE NO.", type **3** and press **Enter**. The following message appears on the screen.

START:CPU (PROTECTED-MODE) TEST

The CPU Test (Protect Mode) ends with the following message.

***** NORMAL END *****

If this message appears, the protect mode functions of your microprocessor are operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

4 SYSTEM CLOCK TEST

This test checks the operation of the system clock and the clock's battery.

At the prompt "ENTER MODULE NO.", type **4** and press **Enter**. The following messages appear sequentially.

- START:SYSTEM CLOCK TEST
- START:READ TEST
- CLOCK COUNT IN SECONDS

xx

If the time on the screen does not advance for every second, see "ERROR HANDLING" in this guide.

- START:BATTERY TEST

The System Clock Test ends with the following message.

***** NORMAL END *****

If this message appears, your system clock and battery are operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

5 KEYBOARD TEST

At the prompt "ENTER MODULE NO.", type **5** and press **Enter**. A keyboard selection menu appears. This is when you select the type of keyboard being used.

If your keyboard has the function keys on the left, you have the 84-key model. Type **1** and press **Enter**. If your keyboard has the function keys along the top, you have the 101-key model. Type **2** and press **Enter**.

The "KEYBOARD FREE TEST" screen appears. The following prompt is displayed on this screen.

PRESS ANY KEY AND CHECK []

Press any key. The character or key type appears in the bracket.

When you press the two-character keys at the top of the keyboard, the top characters appear and indicate that these keys are working. For example, if you press the **1** key, the **!** character appears in the bracket.

When using the keyboard with 101 keys, the Num Lock key must be off except when running the Num Lock Key Test.

When you have tested as many keys as you want, hold down either the left or right **Shift** key and press **E**.

The Keyboard Test ends with the following message.

***** NORMAL END *****

If this message appears, your keyboard is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

6 DISPLAY TEST

This test checks the Display controller or the Plasma controller. If the switch setting for Plasma/CRT selection is in the Plasma position, this test checks only the Plasma controller. If the switch setting is in the CRT position, and you have either an Advanced Color display or a Multisync II display, this test checks only the Display controller.

The Plasma/CRT switch (SW11-1) is the bottom switch located inside the switch cover. Refer to the *PowerMate® Portable SX Owner's Guide* for correct switch settings.

In either case, the Display test checks the controller's two basic modes of operation, alphanumeric (A/N) and all-points-addressable (APA) graphics.

At the prompt "ENTER MODULE NO.", type **6** and press **Enter**. The following message is displayed.

START:DISPLAY TEST

If the switch setting for Plasma/CRT selection is in the CRT position, go to the "Display Controller Test" section. Otherwise go to next section.

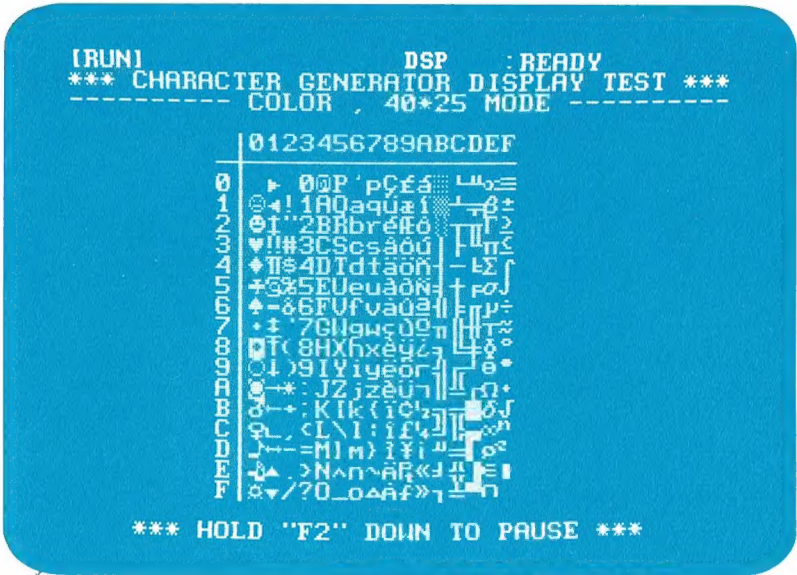
Plasma Controller Test

A series of screens follows, displaying A/N mode tests. The screens appear sequentially at three- to five-second intervals.

To hold a test screen on your display, press and hold the **F2** key down. To continue running the screens, release **F2**.

A/N MODE

The A/N mode test series begins with the following "Character Generator Display" screen in 40 x 25 mode.



Other A/N mode tests appear as follows.

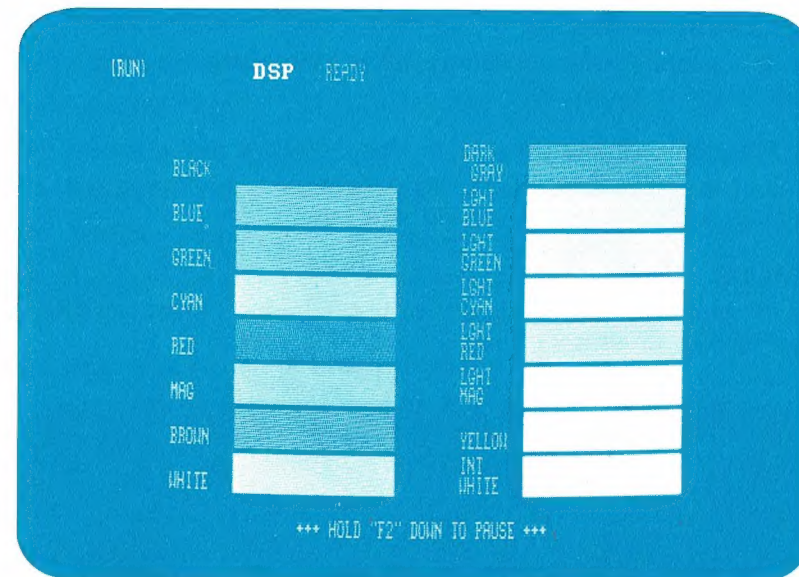
- Character Generator Display, in 80 x 25 mode (CGB)
- Character Generator Display, in 40 x 25 mode (AGB)
- Character Generator Display, in 80 x 25 mode (AGB)
- Character Generator Display, in 40 x 25 mode (VGB)
- Character Generator Display, in 80 x 25 mode (VGB)
- Attribute Display Test, in 40 x 25 mode (CGB)
- Attribute Display Test, in 80 x 25 mode (CGB)
- Attribute Display Test, in 40 x 25 mode (AGB)
- Attribute Display Test, in 80 x 25 mode (AGB)
- Attribute Display Test, in 40 x 25 mode (VGB)
- Attribute Display Test, in 80 x 25 mode (VGB)
- Page 0 (a screen of zeros) through Page 7

APA MODE

The APA graphics mode tests begin with the following "Color Set 1" screen displaying the "NEC" pattern.



Then two more "NEC" screens appear, one in color, and one in black and white. The color screen scrolls upward. After the "NEC" screens, the following 16-color screen is displayed.



Other APA graphics mode tests appear as follows.

- Green-blue-red-gray attribute palette
- 16-color display, in 640 x 200 mode
- 16-color display, in 640 x 350 mode
- Graphics palette series in blue, green, red, and gray diagonal patterns
- Black-and-white screen displaying the "NEC" pattern, in 640 x 200 mode
- 16-color display, in 640 x 480 mode
- Black-and-white screen displaying the "NEC" pattern, in 640 x 350 mode

After the black-and-white screen in 640 x 350 mode, go to "VRAM READ/WRITE TEST."

Display Controller Test

If you have a monochrome monitor, go to "Monochrome Monitor." Otherwise, go to the next section.

Color Monitor

A series of screens follows, displaying A/N mode tests. The screens appear sequentially at three- to five-second intervals.

A/N MODE

The A/N mode test series begins with the following "Character Generator Display" screen in 40 x 25 mode.



Other A/N mode tests appear as follows.

- Character Generator Display, in 80 x 25 mode (CGB)
- Character Generator Display, in 40 x 25 mode (AGB)
- Character Generator Display, in 80 x 25 mode (AGB)
- Character Generator Display, in 40 x 25 mode (VGA)
- Character Generator Display, in 80 x 25 mode (VGA)
- Character Generator Display, in 132 x 25 mode
- Character Generator Display, in 132 x 43 mode

- Attribute Display Test, in 40 x 25 mode (CGB)
- Attribute Display Test, in 80 x 25 mode (CGB)
- Attribute Display Test, in 40 x 25 mode (AGB)
- Attribute Display Test, in 80 x 25 mode (AGB)
- Attribute Display Test, in 40 x 25 mode (VGA)
- Attribute Display Test, in 80 x 25 mode (VGA)
- Attribute Display Test, in 132 x 25 mode
- Attribute Display Test, in 132 x 43 mode
- Page 0 (a screen of zeros) through Page 7

APA MODE

The APA graphics mode tests begin with the following "Color Set 1" screen displaying the "NEC" pattern.



Two more "NEC" screens appear, one in color which scrolls upward, and one in black and white. After the "NEC" screens, the following 16-color screen is displayed.



Other APA mode tests appear as follows.

- Green-blue-red-gray attribute palette
- 16-color display, in 640 x 200 mode
- 16-color display, in 640 x 350 mode
- Graphics palette series in blue, green, red, and gray diagonal patterns
- Black-and-white screen displaying the "NEC" pattern, in 640 x 200 mode
- 16-color display, in 640 x 480 mode
- 256-color display, in 640 x 480 mode
- 16-color display, in 800 x 600 mode

After the 16-color display, in 800 x 600 mode, go to the "VRAM READ/WRITE TEST."

Monochrome Monitor

A/N MODE

The A/N mode test series begins with the following "Character Generator Display" screen in 9 x 14 CG.



Other A/N mode tests appear as follows.

- Character Generator Display, in 9 x 16 CG
- Attribute Display Test, in 9 x 14 CG
- Attribute Display Test, in 9 x 16 CG
- Page 0 (a screen of zeros) through page 7

After A/N mode, APA graphics mode test displays a black-and-white "NEC" pattern screen. After this test, the following message is displayed.

START:VRAM READ/WRITE TEST

Test Endings

The Display test ends with the following screen message.

```
***** NORMAL END *****
```

If this message appears, your display controller is operating correctly. If your results are different from the ones described here, see "ERROR HANDLING."

Press **Enter** to return to program menu.

7 FLOPPY DISK TEST

At the prompt "ENTER MODULE NO.", type **7** and press **Enter**. The following is displayed on the screen.

TEST DRIVE : A-1.4M

1: A-1.4 M	2: B-1.4M	3: B-1.2M	4: B-720K
5: B-360K	6:	7:	8:
9:	A:	B:	C:
D:	E:	F:	

The screen prompt "TEST DRIVE" appears highlighted. Select the drive for this test as follows.

To test

- drive A (top drive), type **1**
- a 1.44-MB drive B, type **2**
- a 1.2-MB drive B, type **3**
- a 720-KB drive B, type **4**
- a 360-KB drive B, type **5**

and press **Enter**. The following warning appears.

WARNING:

INSERT THE "SYSTEM CHECKING DISKETTE" INTO DRIVE X.
PRESS **Enter** WHEN READY.

If the System Checking diskette is not already in the drive that you are testing, insert it. Press **Enter**. The following message appears on the screen.

START:FLOPPY DISK TEST

The test takes about five seconds. The Floppy Disk Test ends with the following screen message.

```
***** NORMAL END *****
```

If this message appears, your floppy disk drive is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

8 HARD DISK TEST

This test takes up to four minutes for a 42-MB disk.

At the prompt "ENTER MODULE NO.", type **8** and press **Enter**. The following is displayed on the screen.

```
START:HARD DISK TEST

TEST DRIVE (x)

FUNCTION : READ SECTOR
CYLINDER : xxx
HEAD     : xx

*** PRESS = F1 TO STOP ***
```

The Hard Disk Test ends with the following screen message.

```
***** NORMAL END *****
```

If this message appears, your hard disk is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

9 SERIAL PORT TEST

This test checks the COM1 communication port on your system unit. To run this test, you need an NEC RS-232C cable and the loopback connector that comes with the RS-232C cable. To install the RS-232C cable, see "Connecting an RS-232C Device" in the owner's guide. Use the following procedure to install the connector.

1. Remove any diskettes in the system unit.
2. Turn off and unplug the system unit and all devices attached to it.
3. If your RS-232C cable is not already installed, connect the cable to the communication port you are testing.

If your RS-232C cable is already installed, disconnect the RS-232C device from the cable.
4. Connect the loopback connector to the unattached end of the RS-232C cable.

With the RS-232C cable and loopback connector installed, load the System Checking diskette.

At the prompt "ENTER MODULE NO.", type **9** and press **Enter**. The following message is displayed on the screen.

```
SELECT DEVICE NO. : #1
```

1: #1	2: #2	3:	4:
5:	6:	7:	8:
9:	A:	B:	C:
D:	E:	F:	

The screen prompt "SELECT DEVICE NO." appears highlighted. Select the device to be tested as follows.

To test COM1, type **1** and press **Enter**. The following is displayed on the screen.

```
COMx TEST
```

```
START:SERIAL PORT TEST
```


If you don't connect the loopback connector correctly, the following message is displayed on the screen.

WARNING: LOOP-BACK CONNECTOR IS NOT CONNECTED

The Serial Port Test ends with the following screen message.

***** NORMAL END *****

If this message appears, the communication port tested is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

10 PARALLEL PORT TEST

Before running this test, be sure that your printer is

- a parallel printer
- installed according to the directions that came with the printer
- connected to the system unit correctly (see "Connecting a Printer" in your owner's guide).

At the prompt "ENTER MODULE NO.", type **10** and press **Enter**. The following message is displayed.

READY? : YES

1: YES	2: NO	3:	4:
5:	6:	7:	8:
9:	A:	B:	C:
D:	E:	F:	

ENTER NO

Check that your printer is in a "Select" mode. "Select" is a mode in which the printer can receive data from a computer. See the user's guide that came with your printer for the setting.

Type **1** and press **Enter**. The following message appears on the screen.

START:PRINTER TEST

The Parallel Port Test ends with the following screen message and a printout.

***** NORMAL END *****

The printout is characteristic of your printer. The test program generates both alphanumeric and graphics characters. If your printer does not print graphics characters, your printout will show alphanumeric characters typical of your printer. Graphics characters appear as solid blocks.

If the "NORMAL END" message appears on your screen and your printout appears, your parallel port is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

11 MODEM CARD (MODEM CARD) TEST

This test checks the Modem Card. At the prompt "ENTER MODULE NO.", type **11** and press **Enter**. The following messages appear sequentially.

```
START : LOCAL LOOP BACK   TEST
START : ANALOG LOOP BACK  TEST
START : CARRIER          TEST
START : ECHO              TEST
START : INTERROGATES      TEST
      VERSION : XX
      ROM SUM : XX
START : INITIALIZE        TEST
```

The Modem Card Test ends with the following message.

```
***** NORMAL END *****
```

If this message appears, your Modem Card is operating correctly. If your results are different from the ones described, see "ERROR HANDLING."

Press **Enter** to return to the program menu.

ERROR HANDLING

When your results are different from those described in this guide, first check if the result on your screen appears similar to the error message following.

```
***** cccccc : ERRORxxx *****
      |           |
MODULE NAME ----- ERROR CODE
```

If you received a similar error message, and it appears in the "Error Handling" table at the end of this section,

- perform the corrective actions listed
- run the System Checking test again. To return to the program menu from the error message screen, press **Enter**. The "Normal End" message appears. Press **Enter** again. The program menu appears.

A "Normal End" message following an error message does not indicate that the error has been corrected. It simply signifies the end of a properly executed test.

If the same error code appears again, see your hardware dealer. Be sure to tell your dealer the following.

- An unexpected result appeared on your screen during the System Checking program.
- The module name (ccccc) and the error code (xxx).

If you did *not* receive a similar error message, see your hardware dealer. Be sure to tell your dealer the following.

- An unexpected result appeared on your screen during the System Checking program.
- The place in the System Checking program where you received the result.
- What result is displayed on the screen.

Error codes which appear on your screen and are not listed in the "Error Handling" table are not user-correctable faults. Please contact your hardware dealer.

The error handling codes that may appear on your screen during the Display Test are not user-correctable faults. Please contact your hardware dealer.

Error Handling

MODULE NAME	ERROR CODE	CORRECTIVE ACTION
FDD	001	Check that the System Checking diskette is in drive A. If not, insert it.
HDD	000 or 021	If you installed a hard disk option, check that the signal cable is connected correctly and that the connection is tight. See the instructions that came with the disk. If your hard disk came already installed in the system unit, call your NEC dealer.
	005	If you installed a hard disk option, check that the data cable is connected correctly and that the connection is tight. See the instructions that came with the disk. If your hard disk came already installed in the system unit, call your NEC dealer.

Error Handling (cont'd)

MODULE NAME	ERROR CODE	CORRECTIVE ACTION
S-PORT	017	Check that your RS-232C cable and loopback connector are connected properly.
P-PORT	004	Check that the printer power is on and the printer "selected." If not, turn on and "select" your printer.
	005	Check that the printer cable is connected correctly and your paper is loaded properly.
MODEM	014	Check that the Modem Card is installed correctly. If the modem is installed correctly, call your NEC dealer.

NOTES

NOTES

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USER'S COMMENTS FORM

Document: PowerMate® Portable SX System Checking
Program Guide

Document No.: 819-180127-000 Rev. 00

Please suggest improvements to this manual.

Please list any errors in this manual. Specify by page.

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